

PATENT

Serial No.: 09/160,991
Filed: September 25, 1998
Group Art Unit: 3724
Examiner: Hwei-Sui Payer
Applicant: Zhang et al.
Title: CUTTING DIE AND METHOD OF FORMING
Atty. Docket: BERL-18A

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

**DECLARATION OF NONOBVIOUSNESS
UNDER 37 C.F.R. §1.132**

The undersigned hereby states and declares the following:

1. I am a senior sales engineer with Bernal, Inc.
2. I have reviewed and understood the subject matter of pending U.S. Patent Application No. 09/160,991.
3. Since 1980, I have worked with customers of Bernal, Inc., including Glad Products, on several projects involving cutting dies.
 - 3.1. In 1998, Glad Products purchased a set of laser cladded dies from Bernal, Inc., such dies having been made by the process described in Bernal's pending U.S. Patent Application No. 09/160,991.
 - 3.2. The laser cladded dies were sold to Glad Products on the basis of Bernal's assertion that the dies would provide extended die life, resulting in significant cost reduction.

- 3.3. After the laser cladded dies made by Bernal, Inc. according to U.S. Patent Application No. 09/160,991 had been used by Glad Products, a representative of Glad Products declared to me that the laser cladded dies made under the new technology of Bernal, Inc. furnished extended die life and significant cost reduction (compared to cutting dies made by other known die making techniques) in the manufacturing of their packaging products, namely 4-ply polymer bags, as asserted by Bernal, Inc.
- 3.4. The representative of Glad Products indicated that Bernal's laser cladded dies have a life span that is approximately 6 times more than the dies previously used by Glad Products. Specifically, the representative indicated that cutting dies made by the use of EDM to cut away base material to define the blade were usable for 800,000 revolutions before the blades needed to be repaired, and that the laser cladded dies purchased from Bernal, Inc. and made according to U.S. Patent Application No. 09/160,991 were usable for 4.6 million revolutions before the blades needed to be repaired.
- 3.5. Overall, Glad Product's production of packaging benefited so much by the use of Bernal, Inc. laser cladded dies that Glad Products's management has stated to me that it will redirect resources in the future for the further purchase of Bernal's laser cladded dies.
4. Therefore, the use of the methods described and claimed in the pending U.S. Patent Application No. 09/160,991 offer innovative solutions to unsolved problems in the making of dies for the cutting of materials to such an extent that Glad Products would

continue and utilize the claimed in the pending U.S. Patent Application No. 09/160,991 for existing and future 4-ply polymer bags.

Further Declarant sayeth naught.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

5-25-04

Robert E. Moore
Robert E. Moore

René M. Maki
NOTARY PUBLIC

RENE M. MAKI
Notary Public, Oakland County, MI
My Commission Expires Oct. 6, 2006

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Sir:

**DECLARATION OF NONOBVIOUSNESS
UNDER 37 C.F.R. §1.132**

The undersigned hereby states and declares the following:

1. I am a senior sales engineer with Bernal, Inc.
2. I have reviewed and understood the subject matter of pending U.S. Patent Application No. 09/160,991.
3. Since 1999, I have worked with customers of Bernal, Inc., including The MeadWestvaco Corporation (hereinafter "Mead"), on several projects involving cutting dies.
 - 3.1. In 1999, Mead purchased a set of laser cladmed dies from Bernal, Inc., such dies having been made by the process described in Bernal's pending U.S. Patent Application No. 09/160,991.
 - 3.2. The laser cladmed dies were sold to Mead on the basis of Bernal's assertion that the dies would provide extended die life, resulting in significant cost reduction.

- 3.3. The only processes previously used by Mead for making rotary cutting dies included the EDM Process and the Direct Machining Process. The EDM Process starts out with a smooth hardened die cylinder with no pattern. During the process material is selectively removed from the die cylinder leaving only the desired blade pattern standing. The Direct Machining Process starts out with a soft die cylinder, and using a 4 axis milling machine the pattern is machined directly onto the die cylinder surface. The blades are then laser hardened.
- 3.4. After the laser cladded dies made by Bernal, Inc. according to U.S. Patent Application No. 09/160,991 had been used by Mead, a representative of Mead declared to me that the laser cladded dies made under the new technology of Bernal, Inc. furnished extended die life and significant cost reduction in the manufacturing of their packaging products, namely 12-pack paperboard beer cartons.
- 3.5. The superiority of the dies manufactured according to the U.S. Patent Application No. 09/160,991 is easily shown: if a rotary cutting die made by the Direct Machining Process costs \$100,000 and lasts 30 million revolutions, a rotary cutting die made by the EDM Process costs \$110,000 and lasts approximately 30 million revolutions, and a Laser Cladded Die produced according to U.S. Patent Application No. 09/160,991 costs \$120,000 and lasts up to 80 million revolutions, the cost per thousand cartons is greatly reduced. I believe this is the reason why Mead chose the Laser Cladded Die offered by Bernal, Inc.

- 3.6. The representative of Mead indicated that Bernal's laser cladded dies have a life span that is approximately 2-4 times more than the dies made by the EDM or Direct Machining Process previously used by Bernal or the dies made by the Direct Machining Process used by Mead and Atlantic Eagle (this latter company no longer being in business). Specifically, the representative indicated that cutting dies made by the use of the EDM or Direct Machining Process to define the blade were usable for 20-30 million revolutions before the blades needed to be repaired, and that the laser cladded dies purchased from Bernal, Inc. and made according to U.S. Patent Application No. 09/160,991 were usable for over 80 million revolutions before the blades needed to be repaired. The representative indicated that the use of the Bernal, Inc. laser cladded dies had resulted in enormous savings.
- 3.7. Overall, Mead's production of packaging benefited so much by the use of Bernal, Inc. laser cladded dies that Mead's management has stated to me that it will redirect resources in the future for the further purchase of Bernal's laser cladded dies.
4. Therefore, the use of the methods described and claimed in the pending U.S. Patent Application No. 09/160,991 offer innovative solutions to unsolved problems in the making of dies for the cutting of materials to such an extent that Mead intends to pursue the acquisition of further laser cladded dies made by Bernal, Inc., with preference over rotary dies made by EDM or Direct Machining processes.

Further Declarant sayeth naught.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

Sept 17, 2004

Dave Radlick

Dave Radlick

René M. Maki

René M. Maki

Notary Public

RENE M. MAKI
Notary Public, Oakland County, MI
My Commission Expires Oct. 6, 2008